

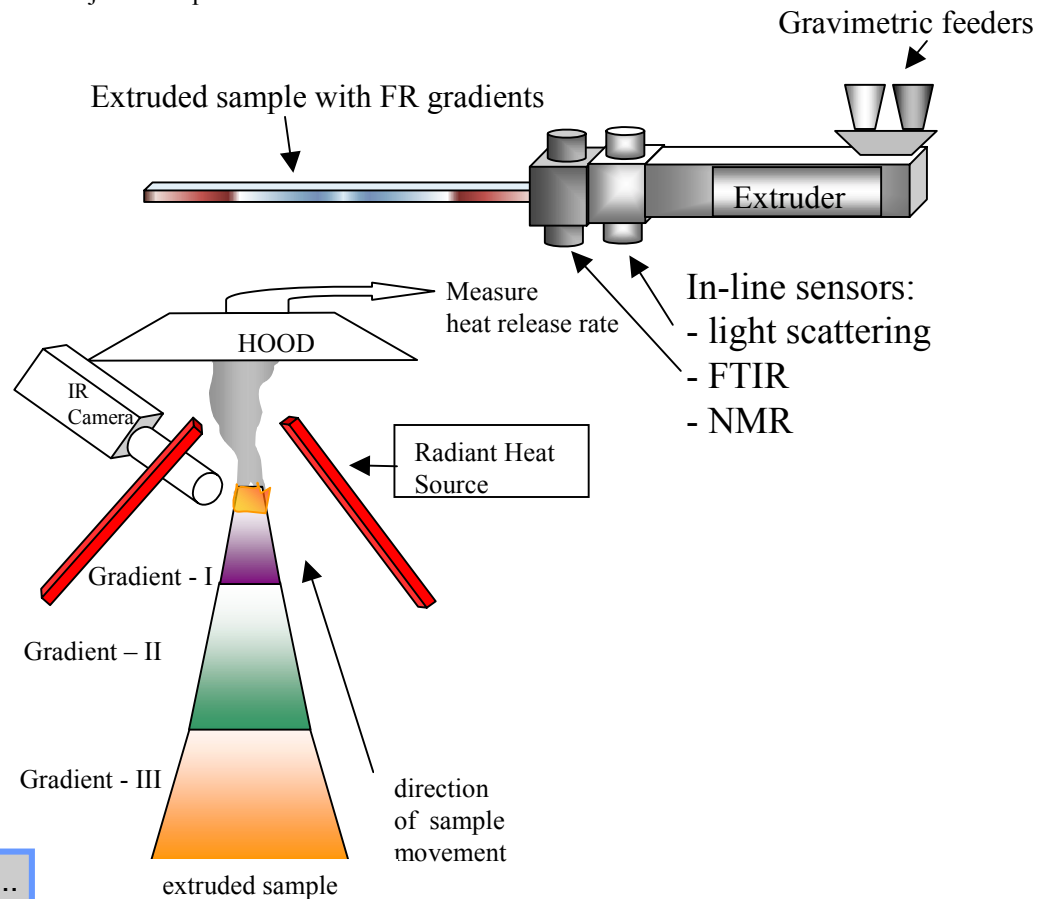
# Fire retardants

- Critical Issues

- The U.S. produces about one-third of a trillion dollars in polymer products annually. Most commodity and engineering polymer resins are flammable, and fire code acceptance requirements are most often met using additives. The addition of plasticizers, curing agents, stabilizers, and pigments, which are needed in almost all commercial applications, causes a further deterioration in fire performance. Traditional trial-and-error approaches for reducing polymer flammability are expensive and time-consuming. On the other hand, combinatorial methods provide the opportunity to explore the complex interactions that govern the ultimate performance of multicomponent materials and, at the same time, offer the possibility to effect a significant reduction in the time required to bring new polymer-based products from the laboratory to the marketplace.

- Research Strategy

- High-throughput methods, based on compositional spread and non-contact thermometry, will be developed for the formulation and screening of fire resistant polymer blends and nanocomposites. Shown below is a conceptualization of a continuous flow flame test extruder that will enable researchers to screen hundreds of possibilities, as determined by variations in the relative amounts of critical additives, in the same time it now takes to test just a couple of formulations.



For more information ...

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